

WHAT IS CLAIMED IS:

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1. An image forming apparatus comprising:
a print engine forming a visible image by
image data supplied thereto;

a controller receiving original image data
10 from an external image-data source and supplying the
image data to said print engine; and

a smoothing unit provided between said
controller and said print engine,

said smoothing unit comprising:

15 a template matching process unit which
determines whether or not the original image data is to
be subjected to the smoothing process by comparing the
original image data with template data, and outputs the
original image data together with a selection signal
20 indicative of a result of the determination of said
template matching process unit;

a smoothing process unit which selectively
applies a smoothing process to the original image data
based on the determination of said template matching
25 process unit so as to output smoothed image data;

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a first control signal source outputting a first control signal representing whether or not application of the smoothing process is permitted on an individual image basis;

5 a second control signal source outputting a second control signal representing whether or not application of the smoothing process is permitted on an individual pixel basis; and

a selector selecting one of the original image
10 data and the smoothed image data base on the selection signal, the first control signal and the second control signal supplied thereto.

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2. The image forming apparatus as claimed in claim 1, wherein said smoothing unit includes a register so that the first and second control signal sources are
20 provided in said register.

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3. The image forming apparatus as claimed in claim 1, wherein said smoothing unit includes a register so that the first control signal source is provided in the register, and the second control signal source is provided in said controller so that the second control signal is directly supplied to said selector without routing said register.

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4. The image forming apparatus as claimed in claim 1, wherein the original image data is multiple value image data, and said smoothing unit includes a binary process unit which binarizes the original image data and supplies the binarized original image data to said template matching process.

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5. The image forming apparatus as claimed in claim 4, wherein said binary process unit binarizes the original image data by comparing the original image data with threshold value data which is externally changeable.

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6. The image forming apparatus as claimed in claim 1, wherein the original data is binary image data, and said smoothing unit includes a binary to multiple value conversion unit which converts the original image data into multiple value image data and supplies the multiple value original image data to said selector.

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7. The image forming apparatus as claimed in claim 1, wherein the original image data includes binary image data and multiple value image data, and said smoothing unit includes a binary process unit and a binary to multiple value conversion unit, said binary process unit binarizing the original image data and supplying the binarized original image data to said template matching process, said binary to multiple value conversion unit converting the original image data into multiple value image data and supplying the multiple value original image data to said selector.

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8. The image forming apparatus as claimed in claim 7, wherein said binary process unit binarizes the original image data by comparing the original image data with threshold value data which is externally changeable.

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9. The image forming apparatus as claimed in claim 1, wherein the second control signal is effected so as to prohibit the smoothing process only when the smoothing process is permitted on an individual image basis by the first control signal.

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10. The image forming apparatus as claimed in claim 1, wherein the template data of said template matching process unit is changeable externally.

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11. The image forming apparatus as claimed in claim 1, wherein said smoothing process unit applies the smoothing process based on smoothing data which is externally changeable.

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12. The image forming apparatus as claimed in claim 1, wherein the original image data is color image data, and the first control signal represents whether or not application of the smoothing process is permitted on an individual color basis.

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13. The image forming apparatus as claimed in claim 12, wherein the second control signal is effected so as to prohibit the smoothing process only when the smoothing process is permitted on an individual color basis by the first control signal.

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14. The image forming apparatus as claimed in claim 5, wherein the original image data is color image data, and the threshold value data is set on an individual color basis.

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15. The image forming apparatus as claimed in claim 1, wherein the original image data is color image data, and the template data is set on an individual color basis.

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16. The image forming apparatus as claimed in claim 11, wherein the original image data is color image data, and the smoothing data is set on an individual color basis.

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17. The image forming apparatus as claimed in claim 16, wherein the smoothing data comprises table information which is set on an individual color basis.

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18. The image forming apparatus as claimed in claim 1, wherein said smoothing unit further comprises a γ -conversion unit which applied a γ -conversion process to the smoothed image data output from the smoothing process unit, the γ -conversion process being applied in accordance with γ -conversion data.

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19. The image forming apparatus as claimed in claim 18, wherein the γ -conversion data is changeable externally.

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20. The image forming apparatus as claimed in claim 19, wherein the original image data is color image data, and the γ -conversion data is set on an individual color basis.

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21. The image forming apparatus as claimed in claim 1, wherein said smoothing unit further comprises a register which stores the template data used by said template matching process unit.

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22. The image forming apparatus as claimed in claim 21, wherein said register further stores threshold value data and smoothing data, the threshold value data being used to binarize the original image data by comparing the original image data with the threshold value data, the smoothing data being used to apply the smoothing process to the original image data.

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23. The image forming apparatus as claimed in claim 22, wherein at least one of the first and second control signal sources is provided in said register.

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24. The image forming apparatus as claimed in claim 1, wherein the second control signal source
10 outputs the second control signal based on whether or not a gradation control process is applied to the smoothed image data.

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25. The image forming apparatus as claimed in claim 24, wherein the gradation control process is one of a Dither process and a gradation area process.

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26. A controller adapted to receive original
25 image data from an external image-data source and supply

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image data to a print engine, said controller comprising:

a storage and processing unit which applies a predetermined process to the original image data and
5 outputs processed original image data; and

a smoothing unit which applies a smoothing process to the original image data output from said storage and processing unit,

said smoothing unit comprising:

10 a template matching process unit which determines whether or not the original image data output from said storage and processing unit is to be subjected to the smoothing process by comparing the original image data with template data, and outputs the original image
15 data together with a selection signal indicative of a result of the determination of said template matching process unit;

a smoothing process unit which selectively applies the smoothing process to the original image data
20 based on the determination of said template matching process unit so as to output smoothed image data;

a first control signal source outputting a first control signal representing whether or not application of the smoothing process is permitted on an
25 individual image basis;

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a second control signal source outputting a second control signal representing whether or not application of the smoothing process is permitted on an individual pixel basis; and

5 a selector selecting one of the original image data and the smoothed image data base on the selection signal, the first control signal and the second control signal supplied thereto.

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